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Public EV Fast Charging Principles

Equitably improving the driver and community experience to achieve the electric vehicle transition in North America

Introduction

The United States (US) passenger car and truck electric vehicle (EV) market is rapidly growing with reports projecting 35 million US EV sales by 2030. Similarly, some projections showcase more than 13 million EVs on the road in Canada by 2030. Sound market influences and policy measures, such as zero-emission vehicle (ZEV) mandates for 100% ZEV sales for new vehicles by 2035 as seen in California, Quebec and New York State further accelerate the necessary market transition to an all-electric future.

As EVs increasingly become the new normal, the need for a robust and equitable public network of Level 2 and Direct Current Fast Charging (DCFC) stations for passenger cars and trucks will rise. Currently, just over 5,000 non-Tesla public DCFC charging stations exist in the US and Canada, but this number is projected to grow significantly by 2030.

Beyond increasing the number of DCFC charging stations, one of the most important factors to accelerate the EV transition is the need for a reliable, seamless, and top-class driver charging experience. Especially in the case of DCFC charging, the experience of locating, plugging-in, and charging an EV should be as easy or easier than using a traditional refueling station for an internal combustion engine (ICE) vehicle. However, drivers too often face situations with EV charging that hinders EV adoption as charging stations can be broken, incorrectly advertised by operators, and overly complicated.

In order to ensure rapid EV uptake, there must be a direct focus on both deploying more DCFC charging stations and providing the best driver experience when charging.
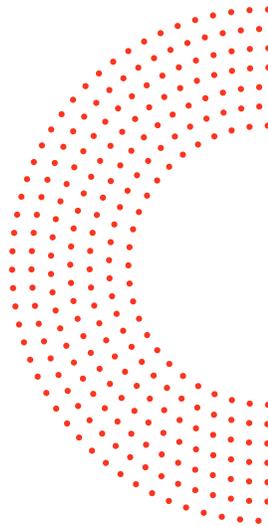
EV charging principles for improving the driver experience
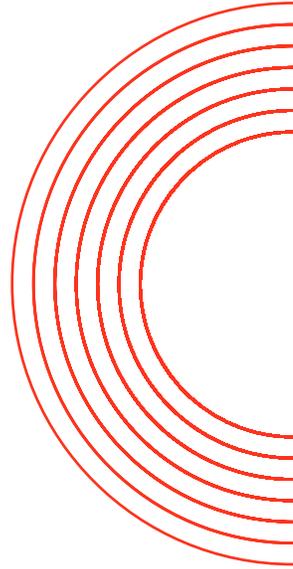
The following key principles are necessary for having the best customer DCFC EV charging experience. The focus of these principles is on DCFC charging. However, these principles can also apply to Level 2 charging stations. Additionally, such principles should incorporate planning and lifecycle assessment to capture the full spectrum of economic sustainability and procedural equity. Any public funding towards public DCFC EV charging deployment should focus on ensuring these principles relating to the installation, operation, and maintenance are met.

Development

Planning

Deployment of DCFC charging stations must be done thoughtfully and equitably to ensure comprehensive availability, especially in lower-income neighborhoods. Planning and deployment of DCFC charging stations should also account for scalability for future capacity, higher power charging stations and greater number of charging stations. Resiliency planning should also be considered in cases of emergency situations to ensure charging stations still receive necessary power to provide charging.
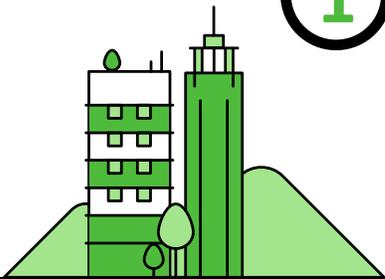
Installation
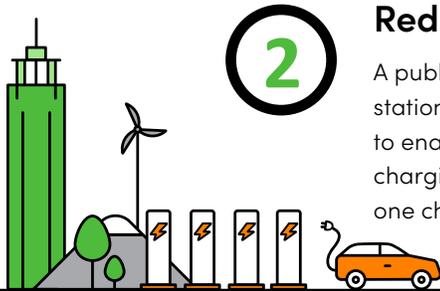
2 Redundancy

A public DCFC charging location must include multiple DCFC charging stations and each location should have sufficient types of connectors to enable varied vehicles to charge. Redundancy, by having multiple charging stations at one location, ensures a driver is not left stranded if one charging station does not operate correctly or is already in use.
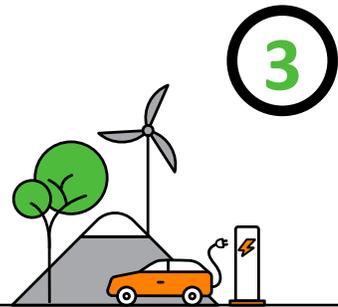
3 Plug-in-Charge or Easy-Payments Options

A DCFC charging station should incorporate plug-in-charge technology and/or offer other payment options for initiating a charging session so that all drivers including unbanked drivers can charge. There should be appropriate signage with multiple language options, to indicate how much a driver will pay for the session. The cost to charge should also follow current market standards to ensure drivers are not overcharged.
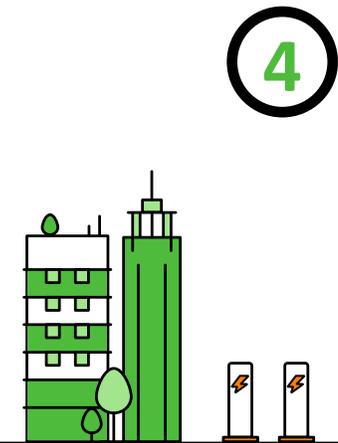
4 Accessibility and Open Access

There should be no paywall, gate, or restriction to access a public DCFC charging station. Additionally, each DCFC charging station should be accessible for drivers with varying physical abilities and abide by Americans with Disabilities Act (ADA) or an equal standard. Public DCFC charging stations should, where possible, be available 24 hours per day, 7 days per week, and 365 days per year with no requirement for creating a mobile application account to initiate a charging session. If a public DCFC charging station is located in a garage, shopping area, or other public area that closes at certain limited hours, then the driver should be made aware of this prior to arriving at the location.

5 Interoperability

A public DCFC charging station must comply with Open Charge Point Protocol (OCPP) or a similar open standard. To limit stranded assets, a DCFC charging station should have the functionality to easily switch to a different software/network provider.

Operation

Roaming

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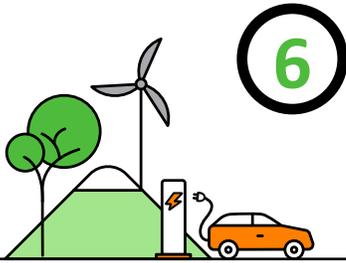
A DCFC charging station provider should incorporate roaming with other DCFC charging station providers to ensure customers can easily charge, no matter the provider.

Uptime

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A public DCFC charging station should strive to have 99% uptime based on a 24 hour, 7-day week time period to ensure a driver can reliably charge as advertised.
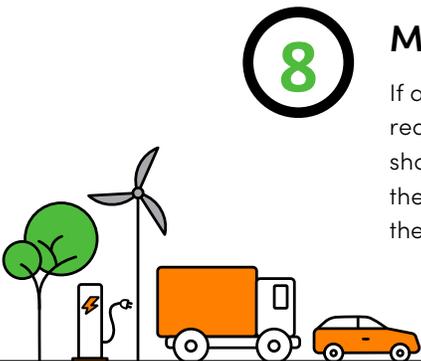
Maintenance and Repair

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If a public DCFC charging station is damaged or inoperable for any reason, the owner, charging station provider, and software provider should work diligently to resolve the issue in a timely manner. Additionally, the inoperable DCFC charging station must not be listed as available until the charging station is fully operational.

Customer Support

9

A public DCFC charging station provider and/or software provider should have a responsive 24-7 toll-free customer service phone number easily available for immediate driver assistance such as informing how to use the charging station, rebooting the charging station, or logging a charging station as broken or inoperable if needed. Customer support should be available for English and non-English speakers.

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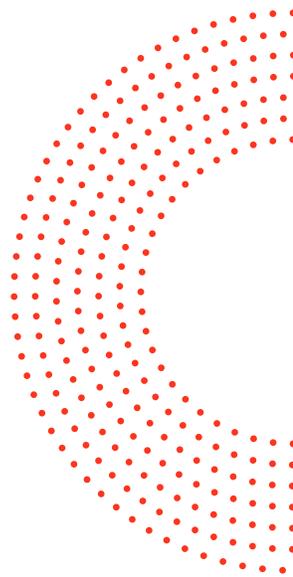
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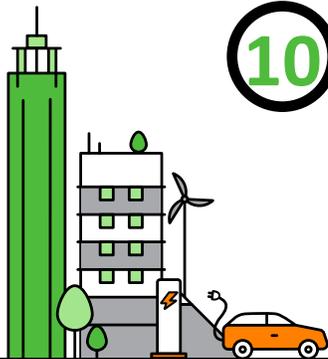
10 Driver Information Transparency

A DCFC charging station and software/firmware provider should work to integrate their technology with applicable third-party services and automotive companies to ensure drivers have the most up-to-date information as they plan their trip to a DCFC charging station. A driver should be routed through the most optimal and fastest route available, utilizing DCFC charging stations that are open, available and operational.

11 Applicability and Implementation

No matter if the DCFC charging station owner is different from the DCFC charging station hardware and software provider, each publicly available DCFC charging station should abide by the principles listed here to ensure the best charging experience for drivers and operators.

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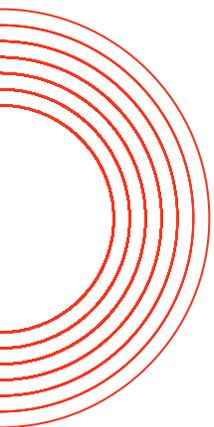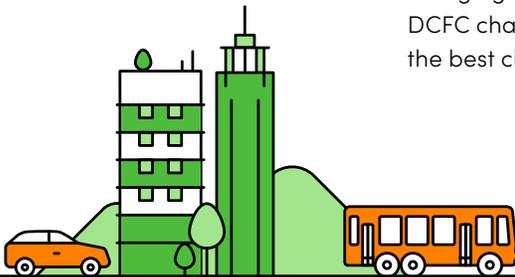
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OFFICE OF GOVERNOR JAY INSLEE

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We would like to thank the Northeast States for Coordinated Air Use Management (NESCAUM) for work done in collaboration with the Multi-State ZEV Task Force to develop consensus recommendations for building reliable, consumer-friendly public EV charging networks. Please see Model State Grant and Procurement Contract Provisions for Public EV Charging and EV Charging Interoperability Recommendations for State Policy Makers for more information.

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EV100 is a global initiative by the Climate Group bringing together forward-looking companies committed to accelerating the transition to EVs, to make electric transportation "the new normal" by 2030. Electric transportation offers a major solution to climate change, as well as curbing air and noise pollution. Businesses can lead through their investment decisions and influence on millions of staff and customers worldwide. By joining EV100 companies increase demand, drive mass roll-out, and make EVs more rapidly affordable for everyone. In driving corporate EV uptake, the Climate Group works closely with regional engagement partners such as Ceres and Japan Climate Leaders Partnership. Members come together as a single voice to promote the development of the EV market.

EV100's US position paper titled, Key Policies to Drive the Electric Vehicle Transition in the US provides a full overview of all the policies supported by EV100 members in the US and the EV100 Progress and Insights Report 2021 offers an overview of member progress to date.

For more information, Please contact Vartan Badalian, EV100 Program Manager, North America at vbadalian@theclimategroup.org

Visit: **theclimategroup.org/EV100**

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Government influence is critical in accelerating the uptake of zero emission vehicles (ZEVs). Through the Under2 Coalition's ZEV Community, all levels of government are coming together to learn about ZEV initiatives taking place around the world. By exchanging information and experiences, governments are developing the knowledge needed to switch public fleets to electric, install charging networks and roll-out supportive infrastructure.

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Climate Group is the Secretariat to the Under2 Coalition, which is a group of ambitious state and regional governments committed to keeping global temperature rises to well below 2°C. The coalition is made up of 260 governments which represent over 1.75 billion people and 50% of the global economy.

For more information, please contact Anaisa Pinto, Policy Manager, Under2 Coalition – ZEV Community at apinto@theclimategroup.org

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